2013 APCBEES MALAYSIA CONFERENCES SCHEDULE

2013 2nd International Conference on Bioinformatics and Biomedical Science (ICBBS 2013)
2013 2nd International Conference on Environment, Energy and Biotechnology (ICEEB 2013)
2013 2nd International Conference on Chemical and Process Engineering (ICCPE 2013)
2013 2nd Journal Conference on Environmental Science and Development (JCESD 2013[2nd])

Kuala Lumpur, Malaysia

Concorde Inn Kuala Lumpur International Airport

June 8-9, 2013

Sponsored and Published by

CBEES www.cbees.org
Engineering & Technology DIGITAL LIBRARY
iJESD ISSN: 2010-0264

www.cbees.org

June 8, 2013 (Saturday)

Concorde Inn Kuala Lumpur International Airport

10: 00 – 12: 30 13: 30 – 17: 00	Arrival and Registration

Note：(1) You can also register at any time during the conference.
(2) The organizer doesn't provide accommodation, and we suggest you make an early reservation.
(3) One Excellent Paper will be selected from each oral session. The Certificate for Excellent Papers will be awarded in the Closing Ceremony on June 9, 2013.

Instructions for Oral Presentations

Devices Provided by the Conference Organizer:

Laptops (with MS-Office & Adobe Reader)

Projectors & Screen

Laser Sticks

Materials Provided by the Presenters:

PowerPoint or PDF files (Files shall be copied to the Conference Computer at the beginning of each Session)

Duration of each Presentation (Tentatively):

Regular Oral Session: about 10 Minutes of Presentation 3 Minutes of Q&A

Keynote Speech: 30 Minutes of Presentation 5 Minutes of Q&A

Conference website and Secretariat Contact:

ICBBS 2013: www.icbbs.org icbbs@cbees.org

ICEEB 2013: www.iceeb.org iceeb@cbees.org

ICCPE 2013: www.iccpe.org iccpe@cbees.org

JCESD 2nd 2013: http://www.ijesd.org/jcesd/2nd/index.htm jcesd02@stpress.net

Morning, June 9, 2013 (Sunday)

Venue: Concorde 2

09:00- 09:15	Opening Remarks Saji Baby Environmental Manager (Research and Consultation) & Principal Scientist GEO Environmental Consultation
09:15-09:50	Keynote Speaker I  Dr. Paul A. Olivier Director and President of E.S.R. Ltd. Co. (USA) "Sustainable and Diversified Agriculture – Not Optional but Absolutely Necessary"
09:50 – 10:20	Keynote Speaker II  Saji Baby Environmental Manager (Research and Consultation) & Principal Scientist GEO Environmental Consultation “Environmental Assessment and Evaluation Studies of Porcelain and Ceramic Manufacturing Factory”
10:20-10:50	Taking Photo and Coffee Break

Morning, June 9, 2013 (Sunday)

SESSION – 1 (ICBBS)
Venue: Concorde 2
Session Chair: Tzong-Yi Lee
Time: 10:50 – 12:30

E00005	Use of Amino Acid-Nucleotide Base Pair Potentials in Screening Protein-DNA Docked Complexes **Dongmin Liu**, Shan Chang, Jian Chen, and Xuhong Tian *Abstract*—Amino acid-nucleotide base pair potentials are used to screen docked complexes generated by DOT. The pair potential algorithm designed in this paper is applied to screening 10 systems selected from protein-DNA benchmark set. For all the systems, a correct docking was placed within the top 6% of the pair potential score ranked complexes. Also, over 60% correct answers rank in the top 10% of the docked results for most of the systems.
E00007	MicroRNAs that Potentially Regulate SOS1 Expression in Colon Cancer

	Fung Lin Yong, Chee Wei Law, Chee Woon Wang *Abstract*—Colon cancer is one of the leading causes of cancer-associated morbidity and mortality worldwide. The development of colon cancer is closely related to epidermal growth factor receptor (EGFR) pathway. Son of Sevenless Homolog 1 (SOS1) gene is a key component in the EGFR pathway that has been reported to be overexpressed in cancer. The aim of the study was to investigate the microRNAs that potentially regulate SOS1 expression in colon cancer patients. A total of 60 cancerous and adjacent non-cancerous tissues were collected. Western blot, microRNA microarray and quantitative real-time PCR analyses were carried out. Significant overexpression of SOS1 and downregulation of miR-195 were determined ($p < 0.05$). The findings suggested a potential regulation of SOS1 expression by miR-195.
E00012	Chondrocyte Infiltration and ECM Production on Surface-Treated PCL Scaffolds: Alkaline Hydrolysis Versus Plasma Treatment **Pakkanun Kaewkong**, Paweena Uppanan, Boonlom Thavornyutikarn, Wasana Kosorn and Wanida Janvikul *Abstract*—The objective of this study was to comparatively examine the responses of porcine chondrocytes to two different polycaprolactone (PCL) scaffolds whose surfaces were treated by alkaline hydrolysis and low pressure oxygen (O_2) plasma treatment, namely HPCL and plasma-treated PCL scaffolds, respectively. The surface morphology and the hydrophilicity of both scaffolds were evaluated by scanning electron microscopy (SEM) and a water contact angle measurement, respectively. The chondrocytes cultured on each scaffold were assessed for their proliferation, cartilage-specific gene expression, cell infiltration, and extracellular matrix (ECM) synthesis after a 21-day culture period. The scanning electron micrographs revealed the increased roughness of both HPCL and plasma-treated PCL scaffolds compared with the untreated PCL scaffold. The measured water contact angle of the plasma-treated PCL scaffold appeared much smaller than that on the HPCL scaffold. The chondrocytes cultured on the HPCL and plasma-treated PCL scaffolds exhibited an insignificant difference in cell proliferation. The expression of type II collagen and aggrecan mRNA found on both surface-treated scaffolds was not much different, either. Nevertheless, the histological results demonstrated that the chondrocytes on the plasma-treated PCL scaffold could more thoroughly infiltrate into the inner parts of the scaffold than those on the HPCL scaffold. Furthermore, a greater ECM production was observed on the plasma-treated PCL scaffold.
E00014	A Complex Network Approach for the Analysis of Protein Units Similarity Using Structural Alphabet **Chi-Hua Tung** and Jose C. Nacher *Abstract*—In this paper we present a network approach based on the recent developed 3D-BLAST method of rapid protein structure search. We defined new local segments that represent structural feature of proteins named units of structural alphabet (USA). Each USA is composed of two protein secondary structures, and one loop located between these two secondary structures. We performed all-against-all structural comparison of USA and recognized the USA-based similarity network. The analytical result shows that the network with a power degree distribution is called scale free. These results not only suggest the existence of organizing principles in the local protein structure but also allow us to identify potential key fragments that could be useful for future new drug development and design.
E00024	Exploiting Two-layered Support Vector Machine to Predict Phosphorylation Sites on Virus Proteins Cheng-Tsung Lu, Kai-Yao Huang, Neil Arvin Bretaña, Wen-Chi Chang and **Tzong Yi Lee** *Abstract*—Protein phosphorylation in viruses plays crucial regulatory roles in enhancing progression, replication, and inhibition of host cell functions. Due to the difficulty of mass spectrometry-based identification of viral phosphorylation sites, we are motivated to develop a new method to investigate the

	substrate motifs and identify protein phosphorylation sites on viruses. The experimentally verified phosphorylation data were extracted from a public resource and a recursively statistical method is applied to cluster whole data set of phosphorylated sequences into subgroups containing remarkably sequence motifs around the phosphorylation sites. Two-layered Support Vector Machine (SVM) is then applied to learn a predictive model by integrating the detected sequence motifs. A five-fold cross validation evaluation on the SVM model yields an average accuracy of 0.88 for Serine and 0.83 for Threonine. Furthermore, the independent testing data collected from UniProtKB and Phospho.ELM indicates that the proposed method is comparable with three popular kinase-specific phosphorylation site prediction tools. The cross validation and independent testing demonstrated that the sequence motifs are informative for the prediction of potential kinases for virus protein phosphorylation sites. Furthermore, the proposed method is a practical means of preliminary analysis for virus phosphorylation dynamics.
E00025	Carotenoids Concentration Detection Investigation: A Review of Current Status and Future Trend **Rosdina Binti Rahiman** *Abstract*—Carotenoids as natural pigment are the class of hydrocarbon and may easily found in vegetables and fruits as well as in human tissue. In human, carotenoids beneficial in health factor as provitamin A, agent of antioxidant, preventing from AMD (age-macular degenartion) in eye disease, reduce risk of prostate cancer, and other high risk disease. Generally, plasma carotenoid appear to be a good indicator and benchmark in measuring total antioxidant status in human using gold standard method, high pressure liquid chromatography, HPLC. Other carotenoids detection area such as macular pigment and skin also give high correlation and significant with plasma carotenoids. Recently, carotenoids detection seem to be more preferrable in animals such as marine life, mammals, non-mammals and birds and as well as in plant. Current status and future trend or direction of detection of carotenoids concentration that have been evaluated with some prediction based on publication among epidermiological and other related studies are presented. The important of planning the direction of carotenoids detection in research activities are identified and suggestions are made for the future research in order to enhance role of carotenoids especially in human as promoting in preventing high risk disease as well as other life for maintaning the environment stability and quality.
E00027	A New Scheme to Predict Kinase-Specific Phosphorylation Sites on Protein Three-Dimensional Structures **Min-Gang Su**, Kai-Yao Huang, Chi-Hua Tung and Tzong-Yi Lee *Abstract*—Due to the high-throughput of mass spectrometry-based phosphoproteomics experiment, the desire to annotate the catalytic kinases for *in vivo* phosphorylation sites has motivated. Many researches are undertaken to develop a computational method for the identification of kinase-specific phosphorylation sites using linear amino acid sequences. With an increasing interest in the structural environment of protein phosphorylation sites, herein, a new scheme has been developed for identifying kinase-specific phosphorylation sites on protein three-dimensional (3D) structures. For a large-scale investigation on 3D structures, all of the experimental phosphorylation sites are mapped to the protein entries of Protein Data Bank by sequence identity. In this work, a support vector machine (SVM) is applied to generate the predictive model learned from the information of spatial amino acid composition and structural alphabet. After the cross-validation evaluation, most of the kinase-specific models trained with the consideration of structural information outperform the models considering only the sequence information. Moreover, the independent testing set which is not included in training set has demonstrated that the proposed method could provide a stable performance. This study has demonstrated that the consideration of spatial context could improve the predictive performance compared to the model only considering the local sequence motifs.
E00028	Two Discrete Stochastic Cellular Automata Models of Cancer Stem Cell Proliferation

	Andrew Ninh *Abstract*—Cancer stem cells (CSCs) are cancer cells that exhibit stem cell-like properties. They are immune to standard chemotherapy and are often implicated for relapse and metastasis. Modeling of CSC-caused relapse is difficult as organisms tend to die before the relapse can be studied, and thus in silico models are ideal but are in development. Two kinds of CSC-induced tumor growth were modeled mathematically and visually using the mass-action and spatial models. Mathematical models of population growth and a better understanding of cancer stem cell population dynamics and neural networks can be achieved by applying discrete stochastic models, automata theory, and cellular automaton. Due to its wide range of possibilities, cellular automata theory opens up new field of mathematical applications in cancer modeling and providing a bridge between bioinformatics and individualized cancer modeling.
E00029	Lossless Compression of Pharynx and Esophagus in Fluoroscopic Medical Images Arif Sameh Arif, **Sarina Mansor**, Rajasvaran Logeswaran and Hezerul Abdul Karim *Abstract*—Hospitals and medical centers produce a tremendous amount of sequential images for medical examinations such as MRI, CT and Fluoroscopy. This series of images takes up a large amount of storage space, in addition to the cost and time incurred during transmission. For medical data, lossless compression is preferable to the greater gains of lossy compression, in the interest of reliability. This paper proposes a new method for lossless compression of pharynx and esophagus fluoroscopy images, depending on correlation and combination of Run Length and Huffman. Otherwise, the shifted images moved to a shifted group and compress separately. From the experimental results obtained, the proposed method achieved improved performance with a compression ratio of 12.2 for the proposed combination of Run-length and Huffman coding (R. Huff) on the difference images as compared to 1.35 for the standard method.
E00030	A Computer-Assisted Non-Image-Based Method for Locating the Center of Femoral Head Jian Wu, **Ang Li** *Abstract*—In total knee replacement (TKR) operation, a key factor for successful operation is to locate the center of the femoral head accurately, and to determine the mechanical axis, which goes through the center of femoral head and knee joint. Place an infrared tracker on the distal end of the femur, rotate the bone and then track the movement with the tracker, thus the center of the femoral head can be determined. We use the Hough transform in this study to convert the least square calculation into a dualistic linear regression, therefore the algorithm is optimized and the computing time is reduced. We also use RANdom SAmple Consensus (RANSAC) algorithm for data screening, which has enhanced the method's resistance to interference during the surgery. Combining the two advantages, this method can reach low deviation within 2mm, fast computing time less than 0.5s, despite of interferences.
E00031	A Source-Discrimination Approach for Detection of ASD Using EEG Data **Uvais Qidwai**, and Wafaa Shams *Abstract*—This paper presents a study which was done in an attempt to discriminate between two motor actions; eyes-open task and eyes-closed task, for two classes; Autism Spectrums Disorders (ASD) and Typical or Normal (TP). Both of these groups were composed of school children with ages between 6 to 9 years. Utilizing the Time Different of Arrival (TDOA) approach applied with raw Electroencephalography (EEG) data for feature extracted in time domain. For each action, specific features were calculated and a Multilayer Perception (MLP) based Neural Network was used to classify the data into the two classes. The classification process was carried out for three scenarios for each group; first, all task for both group were combined together, second, eyes-open were classified for both groups separately, and third, eyes–closed was classified separately. The results show accuracy over 90 % and clearly discriminate for the features.
E10005	Association of BMP6 Methylation and Expression with Clinicopathological Features in Colorectal Cancer

	Patcharaporn Sangplod *Abstract*—Purpose: Bone morphogenetic protein 6 (BMP6) is a member of the transforming growth factor-beta (TGF-β) superfamily known to regulate cell proliferation, differentiation and apoptosis. Promoter methylation of BMP6 has been reported in hematopoietic neoplasm and influences carcinogenesis and tumor progression. In the present study, we evaluated the methylation status and expression of BMP6 in colorectal cancer. Methods: A methylation-specific polymerase chain reaction was used to evaluate the methylation status of BMP6. Immunohistochemistry was used to determine the BMP6 protein expression. A total of 68 colorectal cancers (n=68) were included in this analysis. Results: The methylation study of BMP6 revealed hypermethylation status in 30 cases (44%). Promoter hypermethylation of BMP6 was significantly associated with decreased protein expression. Conclusion: Our findings suggest that BMP6 is potentially a methylation-silenced tumor suppressor gene for colorectal cancer.
E20001	Novel Chimeric Protein as Therapeutic Vaccine against Hepatitis B Virus Nadeem A. Kizilbash, Abdul Hai and **Jamal Alruwaili** *Abstract*—A significant percentage of the human population does not respond well to commercially available recombinant Hepatitis B Virus (HBV) surface vaccine. So it must be replaced by modified vaccines. A chimeric protein comprising both the core and surface portions of the viral envelope was designed on the premise that if the HBV surface protein is fused with the core protein of the viral envelope, it can produce B-cell as well as T-cell immune response. A 23 kDa molecular weight protein, comprising 216 amino acids and consisting of the core and surface regions of the viral envelope protein, was designed. NNPREDICT and PSIPRED programs have provided the secondary structure elements of the protein. The tertiary structure of the protein was predicted by the use of 3D-JIGSAW program. In the predicted tertiary structure, α-helices form a helical bundle domain and the β-strands form another separate domain.

Morning, June 9, 2013 (Sunday)

SESSION – 2 (JCESD)
Venue: Concorde 6
Session Chair: Carolyn Payus
Time: 10:50 – 12:30

CD0107	Changes in Sea Surface Temperature and Precipitation Rate during Typhoons in the South China Sea **Tahereh Haghroosta** and Wan Ruslan Ismail *Abstract*—This study describes how typhoons in the South China Sea can change the sea surface temperature (SST) and precipitation rate trend. Typhoons that occurred in the South China Sea from 1991 to 2011 were selected. The effect of typhoons on SST and precipitation rate was examined with the use of archived data of the National Centers for Environmental Prediction/National Center for Atmospheric Research (NCEP/NCAR), and the number of typhoons from the Joint Typhoon Warning Center during the indicated period was reported. Most typhoons happened during the months of August and September. Maximum values of SST and precipitation rate were recorded during May and June and during November and December, respectively. Results of a long-term study on typhoon behavior indicate that on average, SST increases before a typhoon whereas precipitation rate increases after a typhoon. By contrast, a short-term study showed that an increase in the number of typhoons decreases both SST and precipitation

	rate. Most variations in SST and precipitation rate were seen in longitudes and latitudes in the Malaysian environment.
CD0108	Residual Concentration of PAHs in Seafood from Hormozgan Province, Iran: Human Health Risk Assessment for Urban Population **Seyedeh laili Mohebbi Nozar**, Wan Ruslan Ismail, and Mohamad Pauzi Zakaria *Abstract*—This study is to determine the concentrations of sixteen poly aromatic hydrocarbons in eighteen pooled samples of fish, shrimp, crab and bivalve from markets of Hormozgan province, Iran. The poly aromatic hydrocarbon levels varied from 16 ± 8.4 to 28.18 ± 3.74 ng/g wet weight. The investigated samples were classified as minimally contaminated. Distribution patterns showed that PAHs with 4, 5 and 6 rings dominated, confirming the pyrogenic source of detected PAHs. Fish contributed more than other biota groups in transforming of PAHs to Hormozgan Province people. The average of B (a) $P_{eq)}$ values for the studied biota was 2.71 ± 2.28 ng/g that was greater than calculated local screen value. This finding was implemented in poor quality of studied biota and necessity for risk management.
CD0112	Airborne Particulate Matter and Meteorological Interactions during the Haze Period in Malaysia **Carolyn Payus**, Noraini Abdullah, and Norela Sulaiman *Abstract*—Haze has become a major concern as it has highly significant impacts over Malaysia by several occurrences of haze episodes throughout the country. During the haze periods, airborne particulate matter (PM_{10}) was found as the major pollutant while the other air quality parameters remained within the permissible healthy standards. Haze arise by fires from land clearing in Indonesia that builds up during the dry season affecting tourism, transportation, biodiversity, and contributing to health problems across the region. The variations of the PM_{10} concentrations are due to various atmospheric processes of emissions, dilutions and accumulations that are affected by meteorological conditions. In this study, an analysis of haze status will be performed using PM_{10} values from two commercial urban and industrial areas, which involved Kajang and Shah Alam, and one station that was located outside the city, which is in Kota Bahru, Kelantan, that was selected as a rural station for comparison. The aim of this study is to determine the correlation of PM_{10} concentrations with the meteorological factors (namely on temperature, wind speed and ultraviolet intensity) at different monitoring stations (at different type of land use). Twelve (12) multiple regression models with interactions for each station were developed from data sets of 90; the best model was used to forecast the upcoming haze weather.
CD0119	Study the Effect of Imposing Surfactants toward the Evaporation of Low Molecular Weight Alcohol **Mohammad Hafiz Hamzah**, Sharifuddin Mohd Zain, Rashid Atta Khan, Khalisanni Khalid *Abstract*—In this paper, Reversed-Flow Gas Chromatography (RF-GC) is utilized to investigate the evaporation of low molecular weight alcohol. Evaporation rates as well as the diffusion rates of methanol are determined with a surfactant monolayer on the surface of the liquid; while nitrogen acts as carrier gas, at 313 K. The precision (>99.9%) and accuracy of this investigation demonstrates the potential of current methodologies for environmental impact studies; this is further verified when the results are compared with the available literature. The varying evaporation rates of methanol in the presence of varying amounts of Triton X-100 reflects that application of surfactants do damper the evaporation rates of liquid pollutants; without interference with the former's diffusion coefficients. High amounts of Triton X-100 are required for retardation of evaporation rates, suggesting the formation of a densely packed surface monolayer or the formation of an insoluble monolayer.
CD0120	The Health Risks Assessment for the Poor Management of Health-Care Risk Waste in the Hospital of

	Batna City (Algeria) **L. Sefouhi**, M. Kalla, L. Bahmed, and L. Aouragh *Abstract*—Inadequate management of healthcare waste (HCW) is a serious concern in many developing countries due to the risks posed to human health and the environment. Poor management of HCW exposes health care workers, waste handlers and the community to different risks as : infections, toxic effects and injuries. Risk Management is the identification, assessment, and prioritization of **risks**. In Algeria, many efforts have been made by the government authorities in order to better manage the waste from healthcare facilities. However most healthcare facilities do not comply with the principles stated in Algerian legislation. In the hospital of Batna city, a total about 1114 Kg of risky healthcare waste (RHCW) are produced each day. By using Preliminary Hazard Analysis (PHA) which is an assessment tools, our focus in this paper is to identify and study health risks that may occur due to the existence of hazardous elements in healthcare waste, to identify treatment modalities tailored to each adverse event and to characterize and prioritize these adverse event in terms of occurrence and severity scenario.
CD0121	Effect of Tangerine Oil against *Aspergillus niger* Identified from Raw and Boron Treated Rubberwood **Sopa Jantamas**, Narumol Matan, and Nirundorn Matan *Abstract*—The antifungal efficacy of tangerine oil at various concentrations (10-200 μL/mL) were tested in agar medium and on rubberwood surface against *Aspergillus niger* indentified from raw and boron treated rubberwood. Various dilutions were made in methanol and vegetable oil was used as a control. Components of the tangerine oil were determined by means of gas chromatography-mass spectrometry (GC–MS) analysis. Minimum inhibitory concentrations (MICs) of tangerine oil against *A. niger* identified from raw and boron treated rubberwood in agar medium were 50 μL/mL and 180 μL/mL, respectively. In addition, tangerine oil at those concentrations were capable of protecting against mold growth of *A. niger* on rubberwood surface for at least 12 weeks under storage condition at 25ºC and 100%RH. Major constituents of tangerine oil identified were limonene (69.2%), geranial (16.4%), and p-cymene (4.7%). Higher resistance to tangerine oil of *A. niger* identified from rubberwood treated with boron indicates that boron might enhance mold resistance of *A. niger* to essential oil.
CD0122	Efficacy of Edible Film Incorporated with Essential Oils against White-rot Decay Fungus (*Trametes versicolor*) **Saifon Phothisuwan**, Narumol Matan, and Nirundorn Matan *Abstract*—Antifungal activities of edible film incorporated with essential oils (cinnamon oil, clove oil, anise oil, citronella oil, orange oil, tangerine oil, turmeric oil, guava leave oil, nutmeg oil and lime oil) against a white-rot decay fungus (*Trametes versicolor*) identified from rubberwood were investigated. The disc dilution method was employed to determine the minimal inhibitory concentration (MIC) and minimal fungicidal concentration (MFC) by mixing edible film with essential oil at ratios 1:1, 1:2 and 1:4. It was found that cinnamon oil, clove oil and anise oil were the strongest inhibitors with the MICs and MFCs of 1:4. Decay fungi test of *T. versicolor* on treated rubberwood (coated with edible film incorporated with essential oils at ratio 1:4) were then conducted. After 12 weeks of exposure at 25°C and 100%RH, the average weight loss of each rubberwood sample was determined. The results indicated that rubberwood treated with edible film incorporated with cinnamon oil, clove oil and anise oil at ratio 1:4 were classified as “highly resistant” with weight losses of ≤10%. These findings suggested that edible film incorporated with essential oil has good potential for protecting rubberwood products from the attack of *T. versicolor*.

CD0125	The Enhanced Carbamate Adsorption of Modified Bentonite with *Concinium fenestratum* **Suphara Tha-in**, H.A. Dau, and K. Dumri *Abstract*—Pesticides daily pollutes soil and water in farmland and environment in ASEAN agricultural developing countries. In this study, pesticide adsorption was studied by bentonite modification, targeting the "organoclay" adsorbent in comparison to native bentonite, which was probably reported to adsorb agricultural pesticide. Commercial bentonite was modified with the berberine containing natural extract from *Coscinium fenestratum*; the local folk medicine in Thailand. The modified clay by extracted berberine was able to adsorb carbamate pesticide carbaryl with significant rate. HPLC analysis of residue carbaryl after adsorption process showed that it was up to 80% carbaryl adsorption when bentonite was modified by extracted berberine with ratio 1:100 (w/w), whereas commercial bentonite has showed at 70%. Modified bentonite by *C. fenestratum* extract and berberine revealed by scanning electron microscopy showed that the different transform levels of this clay surface, herein, the highest carbaryl adsorption occurred when berberine/bentonite ratio for modification process was 1/200 (w/w). SEM results also demonstrated that the amount of berberine should be taken into consideration in term of bentonite modification for pesticide adsorption. *Coscinium fenestratum* plant will be further studied for its contribution to pesticide adsorption material in Thailand.

12:30 – 13:30	**Lunch**

Afternoon, June 9, 2013 (Sunday)

SESSION – 3 (ICEEB)
Venue: Concorde 2
Session Chair: Ashgan Abougabal
Time: 13:30 – 15:30

A008	Advanced nitrogen removal from landfill leachate without external carbon addition using a modified SBR process **Kai Wang**, Shuying Wang, Lei Miao and Zhongming Li *Abstract*—In order to achieve advanced nitrogen removal from landfill leachate without external carbon addition, a novel process applying modified sequencing batch reactor (SBR) was proposed for the treatment of real landfill leachate. This process was firstly operated under anaerobic mode and then nitritation was performed under alternate anoxic/aerobic mode. When nitritation was finished, advanced nitrogen removal was realized at the expense of endogenous denitritation. The accurate indication of reaction by real-time control saved the operation cost potentially together with the usage of internal carbon source. More significantly, low sludge production under long-term endogenous metabolism simplified the wasted sludge disposal.
A010	The Long-term Effect of Carbon Source on The Microbial Community in The EBPR System and Stoichiometry **Z.J.Miao**, Y.Z.Peng ,G.S.Xue, S.Y.Wang D.C.Weng *Abstract*—In order to investigate the long-term effect of the characteristics and the evolvements of microbial community in the enhanced biological phosphorus removal(EBPR) under different carbon sources, three sequencing batch reactors were operated with switching acetate to propionate, glucose

	and domestic wastewater as the sole carbon substance. The results clearly show that there are very distinctive rates of phosphorus release or uptake per MLSS in each reactor. The microbial community of the sludge was analyzed using the polymerase chain reaction (PCR)-denaturing gradient gel electrophoresis (DGGE) method during about 12 months of the operating phase. It was found that the number of major bands was decreased during the whole operating phase, indicating that the microbial community structure was getting simpler. The dominant bands of three reactors were excised and recovered to sequence it. The sequence, which was closely related to one of the putative PAOs group belong to beta-proteobacteria, was playing key role of P-removal in SBR1#. The sequence of SBR2# and SBR3# were related to some uncultured bacterium which were reported by Maszenan et al (2000) and McMahon et al (unpublished). Some stoichiometry parameters of SBR1# and SBR2# was confirmed at the end period of operating phase.
A012	Potential of Vermicompost Biofilter for the Removal of Formaldehyde **Swe Jyan The** and Noor Zalina Mahmood *Abstract*—Biofiltration is a biological treatment used to remove pollutants from fluid media i.e. liquid or waste gas streams. A biofilter comprising an air pump, vermicompost volume of 6.38L and one golden pothos plant (*Epipremnum aureum* sp.) was assembled. This biofilter was subjected to inlet concentrations between 0.443 to 5.897g m^{-3} of formaldehyde for 8 hours per day, over a period of 16 days. Air samples were collected daily at 4-hour intervals from daily start-up. Mass of formaldehyde entering and exiting the biofilter was determined using US Environmental Protection Agency (USEPA) Method 323. Using this data, removal efficiency and elimination capacity was calculated. The investigated biofilter exhibited removal capacities above 94.8% throughout the experiment, with observed outlet concentration ranging between 0.003 to 0.079g m^{-3}. The highest elimination capacity observed during the experiment was 276.0±23.3g/m3/h. Vermicompost derived from spent mushroom compost and mixed organic kitchen waste was found to have removal capacities comparable to synthetic and composite packing media. The high elimination capacity exhibited suggests potential for the control of industrial emissions.
A013	Assessing Indoor Air Quality Measurement Correlations and Variations in School Buildings **Jukka-Pekka Skön**, Mika Raatikainen, Markus Johansson, Kauko Leiviskä and Mikko Kolehmainen *Abstract*—Schools are suitable type of buildings for Indoor Air Quality (IAQ) measurements. This is justified by the fact that IAQ measurements can ensure a comfortable and healthy environment for educational purposes. The aim of this study is to assess IAQ measurement correlations in 10 school buildings and more detailed correlations and variations in two school buildings. The study also shows challenges related to data transfer in school buildings when sensor or sensors are installed on a different floor than the data transfer unit. In conclusion, both schools' IAQ is good on school days during the research period when the ventilation is switched on. Hence, usually abnormal situations on IAQ occurred in the evenings when the ventilation is switched off.
A014	GROWTH PERFORMANCE OF FATTENING HOGS FED WITH FRESH AND DRIED CASHEW APPLE **Liwayway Acero**, Ed.D, Cheryl G. Lagan and Mary Athena C. Padul *Abstract* —Cashew apples are commonly seen as leftover fruit part, after harvesting its nuts. The aim of the study included the use of locally available feed ingredients that is still left unutilized for animal consumption. The objective is to determine and compare the growth performance of hogs fed with dried and fresh cashew apple. Likewise the cost of production was also computed and compared. The result showed that fattening hogs fed with 20% fresh cashew apple and 20% dried cashew apple had heavier final weight and average bi-weekly gain in weight compared with those in the control group.

	The cost of production of fattening hogs fed with fresh and dried cashew apple was reduced. The result obtained will serve as baseline information to livestock growers to minimize the cost of production, thereby utilizing locally feedstuffs. For researchers this will serve as source of related studies to further increase the percentage of fresh and dried cashew apple in the ration for hogs and other animals without compromising animal's health.
A016	Study the Anthocyanin Extraction from the Rind of Mangosteen (Garcinia mangostana) in Vietnam **Dam Sao Mai** and Le Van Tan *Abstract.* Mangosteen (Garcinia mangostana) is grown much in Vietnam. Many researches showed that the rind of this fruit has many active components. In Vietnam, till now, the rind of mangosteen is thrown away. That's why the research on anthocyanins extraction from the rind of mangosteen is necessary in Vietnam, it will reduce the waste and raise the value of this fruit. This survey focuses on the condition of anthocyanins extraction from the rind of mangosteen. The optimal condition of anthocyanins extraction was received when ethanol 40^o was used as solvent with HCl 1.5%; the rate of the rind and solvent was 1:10; the extraction temperature was 60°C; the extraction time was 40 minutes.
A018	Biodiesel Production from Jatropha Curcas, Waste Cooking Oil and Animal Fats under Supercritical Methanol Conditions **Chee Kai Tan** and Maoqi Feng Abstract—In this study, triglycerides of animal fats, Jatropha curcas, and waste cooking oil were used as feedstock for transesterification under supercritical methanol conditions. For waste cooking oil, the fatty acid methyl ester (FAME) yield was >90% at the following reaction conditions: reaction temperature = 300^oC and 250°C, reaction pressures = 2000 psi, 2500 psi, and 3000 psi, residence time = 18 minutes, and molar ratio of methanol to oil = 40:1. However, when the residence time decreased to 7 minutes, at 250 ^oC and 2500 psi, the transesterifcation conversion dropped to 86 %. Using a heterogeneous catalyst, ETS-10, the transesterification reaction conditions were lowered to subcritical levels, and a conversion of over 99% was achieved with a residence time of 4 minutes. Because of the short residence times, reduced waste, and high triglyceride conversions, a biodiesel process employing supercritical methanol with a heterogeneous catalyst may present significant economic advantages over the conventional process.
A019	Geospatial Modeling of Surface Temperature of Hatyai City, Thailand **Poonyanuch Ruthirako** and Wichien Chatupote *Abstract*—The high temperature of urban heat island (UHI) which is higher than the surrounding rural areas not only affects the comfort of urban dwellers, but also increases energy consumption and the number of deaths for humans due to heat wave. The purpose of this study was to investigate the differences between deterministic and geostatistical approaches in predicting the temperature and humidity surface map of Hatyai City and to determine the UHI indicators from the remote sensing data. The deterministic and geostatistical models (IDW, Ordinary and De-trend Kriging) in creating temperature and humidity map of the city were compared. The results indicated that the temperature and humidity data were relatively normal in distribution and there was no transformation needed in the kriging model construction. The temperature and humidity data showed that the trend tended to exist in both north-south and east-west directions. However, there was no significant improvement of the predicting maps in term of prediction error and mean square error. The spatial characteristics of the normalized difference vegetation index (NDVI) and normalized difference built-up index (NDBI) were closely related to the UHI and could be used as indicator to identify optimum of urban green space allocation.
A022	STUDY OF SEDIMENTATION IN THE SEFIDROUD DAM IN DEPTH EVALUATION AND COMPARE THE RESULTS WITH THE METHODS BY USBR AND FAO Mohammad Sadegh Sadeghian, **Faridah Othman**, Mohammad Heydari and Faegheh Ebrahimi

	Abstract—One of the fundamental issues with the operation of surface water resources is erosion, and sediment transport. Reducing the reservoir's useful life and declining the reservoir storage are subsequences of erosion and sediment transport. These natural events occur in different geographical circumstances. Since the major part of the watershed sedimentation consists of suspended sediments, the amount of suspended loads, has a special priority. (Kişi 2007) Determining the amount of erosion or sediment transportation is practically very difficult. So far different methods have been proposed and among are methods for estimating the suspended load of rivers, hydrometer station sediment survey, sediment rating curve approach, depth evaluation and extrapolation are common. In order to determine the density of sediments, rating curve methods are the most popular. The rating curve method uses power relations fitted curve water discharge and sediment discharge. Hydrologists use rating curve methods in the case that there is no real suspended load, or if the sedimentation data is not accurate enough and remarkable differences in results are observed between measurement data and outcome, or when there are no long term measurements. It should be noted that measuring and monitoring the amount of suspended load by using depth evaluation method is costly. In this study, the FAO and USBR approaches are used to estimate the performance of sediment rating curve methods, and the results are compared with the results of the depth evaluation of Sefidroud watershed. The results of this study indicate that USBR method can be introduced as an optimization method in the Sefidroud watershed by using classified statistics.
A025	Multi Objective Operation Optimization of Reservoirs Using Genetic Algorithm (Case Study: Ostoor and Pirtaghi reservoirs in Ghezel Ozan Watershed) Mohammad Noori, Mohammad Bagher Sharifi , **Mohammad Heydari** and Faridah Othman *Abstract*—In this study, a Genetic Algorithm model for optimal operation of a multi-reservoir and multi-objective water resource system in Ghezel Ozan watershed for hydropower generation and flood control is developed. The system is made of two reservoirs in series on the Ghezel Ozan's river. This model is used for optimal reservoir operation, allocation of water among different power plants and keeping a part of storage volume to control the probable floods using a definite combination of decision variables (Release of water to the power plants). The model operation for 12 months of a year shows that, the amount of releases in flooding months of the year is more than others.
A10014	Sustainability Metrics and Life Cycle Assessment for Thermochemical Conversion of Woody Biomass to Mixed Alcohols **Eric C. D. Tan** and Abhijit Dutta *Abstract*—This study quantifies selected sustainability metrics including the life cycle greenhouse gas (GHG) emissions for ethanol production via thermochemical conversion of biomass. Results are based on the process detailed in the National Renewable Energy Laboratory's 2011 conceptual design for mixed alcohols via indirect gasification of woody biomass. The impacts of biomass feedstock moisture and ash contents on the biofuel production efficiency and the life cycle GHG emissions are investigated. Field drying the feedstock from 50 wt% to 30 wt% moisture content lowers the life cycle GHG emissions by more than 13%. Reducing ash content in the feedstock preprocessing step from 7 wt% to 1 wt% decreases the overall GHG emissions by about 7% due to improved biofuel yield. The life cycle GHG emissions for the cases evaluated range from 39.1 to 48.7 g CO_2-equivalent (i.e., CO_{2e}) per kilometer driven or 12.4 to 15.5 g CO_{2e} per MJ. For all cases evaluated here, the GHG emissions are reduced by more than 83% compared to the baseline gasoline life cycle GHG emissions.
A10015	Effects of mixture ratios on co-fermentation of primary sludge and waste activated sludge under alkaline condition **Gao-qiang Su**, Bing-yu Zheng, Zhi-guo Yuan and Yong-zhen Peng

	Abstract—Primary sludge (PS) or waste activated sludge (WAS) can produce a large amount of volatile fatty acids (VFAs) under alkaline conditions, and the VFAs can be supplied for the wastewater treatment plants to enhance nitrogen and phosphorus removal. However, how VFAs production will be affected by co-fermenting PS and WAS under alkaline condition is rarely reported. This study investigated the effects of mixture ratios on co-fermentation of PS and WAS at pH = 10. The best fermentation time for sludge solubilisation and VFAs production was 4 days for any mixture ratio investigated. Acetic acid was the prevalent VFA for all mixture ratios investigated. With the ratio of WAS increasing, the acetic acid percentage decreased, while the *n*-butyric acid percentage and *n*-valeric acid percentage both increased. Co-fermentation demonstrated equivalent, sometimes even higher hydrolysis and acidification abilities compared with separately-fermentation.

Afternoon, June 9, 2013 (Sunday)

SESSION – 4 (ICCPE)
Venue: Concorde 6
Session Chair: Farouk Sabri Mjalli
Time: 13:30 – 15:30

I003	Biodiesel production of Garcinia Mangostana Linn. seeds by two-phase solvent extraction and alkali-catalyzed transesterification **L. Nabilah Aminah**, S.T. Leong, Y.S. Wong, S.A. Ong, C.K. Kairulazam *Abstract*—The present study introduced the potential used of Garcinia Mangostana Linn. seeds as feedstock for bio-diesel production. The preparation of biodiesel by two-phase solvent extraction (TSE) and alkali-catalyzed transesterification was studied. The important factors including catalyst concentration, ratio of methanol to oil and temperature on conversion FAME were examined respectively by experiments. The results of two-step transesterification showed that the optimal conversion of Garcinia Mangostana Linn. seeds into fatty acid methyl ester (FAME) were at condition of 4:1 methanol/oil volume ratio, 50^{o}C reaction temperature, 0.5% (catalyst / oil weight ratio w/w) solid base catalyst amount and at 5 minutes reaction time.
I005	SURFACE TENSION OF IONIC LIQUIDS ANALOGUES USING THE QSPR CORRELATION **F. S. Mjalli** , K.Shahbaz, , M. A. Hashim, I. M. AlNashef *Abstract*—Deep eutectic solvents (DESs) are considered as potential alternatives for ionic liquids. These mixture complexes are being introduced in many applications due to their favorable physicochemical characteristics. However, due to the lack of experimental data, prediction of their physical properties is challenging. One of the important physical properties that provides considerable insight of the molecular influence on intensity of interactions in the mixture is the surface tension. In this work, the QSPR prediction method was employed to predict the DESs surface tension. The parachors of nine different DESs based on ammonium and phosphunium salts were determined experimentally and were also calculated from the molecular structure of their constituting components using available parachor contribution data for neutral compounds. The results showed that the calculated and experimental parachors of DESs were notably comparable and the parachor contribution data developed for neutral compounds can be successfully utilized for deep eutectic solvents. The calculated parachors were employed to predict the surface tension of DESs using their experimental densities values. A good agreement was observed between the measured and predicted surface tensions of DESs with an average

	percentage error of 6.4 %.
I006	Sodium Hydroxide Pretreatment and Enzymatic Hydrolysis of Oil Palm Mesocarp Fiber **Nur Izzati Iberahim**, Jamaliah Md Jahim, Shuhaida Harun, Mohd Tusirin Mohd Nor and Osman Hassan *Abstract*—Sodium hydroxide pretreatment of oil palm mesocarp fiber (OPMF) was carried out with NaOH from 2% to 10% (w/v) at temperature 500C and 700C. The performances of pretreatments were evaluated based on total carbohydrate and reducing sugar including glucose, xylose and arabinose after enzymatic hydrolysis on the pretreated biomass. It was found that the enzymatic hydrolysis had significantly improved when 6% NaOH in 700C applied in the pretreatment process. The highest total reducing sugars produced by means of commercial enzymes was achieved with the overall conversions of glucan and xylan of 87% and 60.73% respectively. The compositions of OPMF in this study are as follows (% g/g dry biomass): glucan, 28.8, xylan, 25.3, arabinan, 1.91, ethanol extractive, 6.32 and ash, 2.60.
I008	Sterilization of Oil Palm Fresh Fruit Using Microwave Technique **Umudee I.**, Chongcheawchamnan M., Kiatweerasakul M., and Tongurai C. *Abstract*—Dramatically increasing rate of free fatty acid (FFA) in long storage oil palm fresh fruit is one of the most crucial problems of oil palm mill industries. Thus sterilization was required in order to overcome the enzymatic reaction which produces FFA. Currently, conventional effective technique is steam sterilization, which gives a large amount of waste water. The aim of this paper is to study for sterilization of oil palm fresh fruitlet and spikelet using microwave techniques for enzyme inactivation. The result indicated that optimum condition of microwave heating in order of interrupting the enzymatic reaction is heating to 50 °C but not exceed to 80 °C, the fruits can be storage within 7 days at ambient condition. Conclude that heating from irradiation of microwave is capacitating for dry and clean sterilization system.
I009	Potassium Carbonate as a Salt for Deep Eutectic Solvents **J. Naser**, F. Mjalli, B. Jibril, S. Al-Hatmi, and Z. Gano *Abstract*—Deep Eutectic Solvents (DES) are emerging as new class of green solvents with the favorable properties of low cost, minimum volatility, biodegradability and suitability for many industrial applications. In an attempt to synthesize a new class of DES, potassium carbonate as a salt was used with glycerol as a hydrogen bond donor (HDB). The basic physical properties of this DES were measured at different temperatures and salt:HBD molar ratios. The physical properties measured included density, viscosity, surface tension, refractive index and pH at a temperature range of 20 - 80 oC. The system didn't show a freezing points in DSC thermograms, however glass transition temperatures were observed. This system exhibits similar physico-chemical properties to other reported DES. The values of these properties indicated that the prepared DESs samples have great potential for industrial applications.
I013	Evaluation of rubber/mild steel bonds failure after exposure in marine environment **Ismaliza Ismail** and M.K. Harun *Abstract*—The use of rubber/metal bonded composite is growing in the offshore industries as well as in the automotive components. Maintaining a good adhesion between rubber to substrate bond is a crucial importance in ensuring a satisfactory product performance in service. Bond failure attributes to the severe product performance failure. Exposure under salt environment can cause the bond failure due to corrosion reaction. Therefore the durability of rubber/metal bond in seawater, using natural rubber bonded to mild steel by proprietary bonding agent is studied. The locus of failures was determined at primer/metal oxide layer and the results are presented in the SEM and EDS analysis on both of the interfacial failures area. The adhesion failure mechanism is proposed where the bond delamination was found precedes the under film corrosion.

I017	Structures and Hydrogen Bonding Recognition of Mefenamic Acid Form I Crystals in Mefenamic Acid/ Ethanol Solution **Siti Kholijah Abdul Mudalip**, Mohd Rushdi Abu Bakar, Fatmawati Adam and Parveen Jamal *Abstract*—Mefenamic acid is one of the active pharmaceutical ingredientsthat exhibit polymorphism. An experimental study has found that Form I of mefenamic acid is produced fromcooling crystallization with ethanol as a solvent. Hydrogen bonding is considered as the fundamental factor that controls the polymorphism of mefenamic acid in ethanol. This work, in essence, tried to verify this using molecular dynamics simulation.The simulation was performed using COMPASS force field available in Material Studio package.The resultof the simulation showed strong hydrogen bonding between oxygen and hydrogen in the carboxylic group.The results of the Fourier transform infrared spectroscopy analysis confirmed the existence of O-H, C-O and C=O bonds. These findings proved the presence of hydrogen bondsthat leads to the formation of hydrogen motif in Form I of mefenamic acid during crystallization process using ethanol as a solvent.
I023	Enzymatic Destruction Kinetics of Oil Palm Fruits by Microwave Sterilization **Maya Sarah**, and Mohd. Rozainee Taib *Abstract*—Microwave sterilization of oil palm fruit is carried out to deactivate lipase and soften the fruits. This study is aims to determine enzymatic destruction kinetics from microwave sterilization of oil palm fruits such as decimal reduction time (D-value), temperature sensitivity (z-value), kinetic constant (k) and activation energy (E_a). Three power levels (medium, medium high and high) of the microwave oven were used and lipase assayed was conducted to determine the lipase activity. Microwave sterilization of oil palm fruits depends on the destruction kinetic parameters such as D-value, z-value and Ea. It required only 8.333 to 16.949 minutes to deactivate the lipase, and the process is not temperature sensitive which is indicated by z-value. The z-value indicated requirement to increase temperature up to 71.5, 77.0 and 83.0^{o}C respectively from initial maximum temperature to reduce the D-value. Minimum energy required to start the destruction process of lipase was 13.927 to 14.049 kJ/mole obtained from microwave sterilization of 1 kg oil palm fruits at all power levels. Oil quality observed from free fatty acid (FFA) concentration that indicated FFA below 3.5%.
I024	Adsorption of organic dyes from aqueous solution by surfactant modified corn straw **C. Umpuch** and B. Jutarat *Abstract*—The modification of adsorbent with a cationic surfactant is an effective and inexpensive method to enhance sorption capability of adsorbent. In this study, raw corn straw, modified with a cationic surfactant, tetradecyltrimethyl ammonium bromide was used as adsorbent for dye removal from aqueous solution. The modification caused surface properties of the adsorbent altered from hydrophilic to hydrophobic. To comprehend the modification, the physical property of adsorbents was characterized by BET surface analysis, FTIR-spectra and SEM images. The adsorption of two organic dyes namely blue21 and yellow20 on the modified adsorbent has been investigated in three batch adsorption experiments. Firstly, kinetic study was performed. It was found that the equilibrium time was at 180 min and the kinetic data obeyed pseudo-second order kinetic model. Secondly, the effect of the pH solution was investigated. It was found that the adsorption capacity decreased at a low level with increase in the solution pH. Finally, the adsorption isotherms experiment was conducted and the equilibrium adsorption data was fitted into Langmuir and Freudlich isotherms and the system followed only the Freulich equation. From the above result, the corn straw modified by cationic surfactant is an effective adsorbent for removal of the organic dyes from aqueous solution.

15：40 - 16：00	Coffee Break

Afternoon, June 9, 2013 (Sunday)

SESSION – 5 (ICEEB)
Venue: Concorde 2
Session Chair: Paul A. Olivier
Time: 16:00 – 18:00

A10018	Evaluating Effects of Indoor Air Quality on School Building Users' Health: A Study in the Schools of Kuopio, Finland **Mika Raatikainen**, Jukka-Pekka Skön, Mari Turunen, Kauko Leiviskä and Mikko Kolehmainen *Abstract*—The quality of indoor air is commonly measured by temperature, humidity and carbon dioxide (CO_2) sensors. Volatile Organic Compounds (VOCs) are usually analyzed using air samples, but also sensors that detect odors and gases are available. In this study, Total Volatile Organic Compounds (TVOC) and Carbon Dioxide (CO_2) concentrations were measured by continuous measurement sensors in schools of Kuopio, Eastern Finland. Results and conclusions, concerning two comparable school buildings' Indoor Air Quality (IAQ) conditions are described by means of carbon dioxide (CO_2) and total volatile organic compounds (TVOC) concentrations; hourly averaged daily curves and distributions. The results indicate that during school days, the CO2 concentrations have been within recommended ranges. In addition, TVOC values stay on relatively low level below 3 ppm. According to recommendations and limit values of many scientific sources, the observed levels should not cause any uncomfortable effects on humans' health and comfort. Occupants' perceptions of IAQ were collected by questionnaire. These responses also support results and conclusion based on measured IAQ data.
B001	Biohydrogen Production from Sterilized Sewage sludge as a Substrate using Mixed Cultures **Mijung Kim**, Sechang Oh, Randeep Rakwal, Chungang Liu and Zhenya Zhang *Abstract*—This study investigates biohydrogen production from sewage sludge as substrate by mixed cultures using batch experiments under thermophilic anaerobic conditions and four different sterilization times (15, 30, 45, and 60 min). Increasing the sterilization time caused a decrease in the total solids (TS) and volatile solids (VS), however, the soluble chemical oxygen demand (SCOD) of sterilized sludge increased. The SCOD of sterilized sludge was 1.2 to 1.9 times higher than that of raw sewage sludge. Sterilization treatment was found to accelerate and increase biohydrogen production throughout the batch experiment, but with no measurable methane production. The maximal biohydrogen yield from sterilized sludge at 15, 30, 45, and 60 min was 16.8, 25.1, 25.2 and 25.5 ml H_2/g-VS, respectively, which was 4.3 to 6.5 times higher than that obtained with raw sewage sludge (3.9 ml H_2/g-VS). Our results show that 30 min is the optimal sterilization time for sewage sludge. Under these optimal conditions, overall VS removal (solubilization and anaerobic process) in sterilized sludge was 41.4%, and which was 1.5 times higher than that seen with raw sludge. The findings of our study have potential practical use in not only processes for efficient biohydrogen production but also in waste treatment.
B005	Research on The Construction of Regional Ecological Network in Multiple spatial-scales Context:A Case Study of Wolong Lake Eco-region in Shenyang Wang Yuncai and **Lv Dong** *Abstract*—This dissertation researches the approaches of the construction of the regional ecological network in the context of multiple spatial-scales. In the first place, the article differentiates and analyses the internal meaning of the 'multiple spatial-scale', and then reviews the origin and evolution of the

	ecological network. By means of the interpretation of the current situation of the ecological system and water environment of Wolong Lake eco-region (which locates in the city of Shenyang) in the context of multiple spatial-scales, the article study the ecological localization, ecological network construction and ecological technology support measures respectively from the macro, meso and micro scales aiming to form the systematic approaches of the ecological network construction. Based on the above approaches, the objectives of the macroscopic planning manage to be achieved step by step and also the water environment is protected and restored in the context of multiple spatial-scales. Finally, the ecological network construction can maximize its efficiency through the combination of the according achievements with the traditional planning (including land use planning, tourism development, etc.).
B006	Enhancement of lipid accumulation in Cunninghamella bainieri sp. 2A1 via feeding of ammonium and metal ions **Shuwahida Shuib**, Othman Omar, Abdul Jalil Abdul Kader and Aidil Abdul Hamid *Abstract*—Enhancement of lipid accumulation of locally isolated oleaginous zygomycete, namely*C.bainieri* sp. 2A1 through strategic feeding of ammonium and metal ions in submerged culture was investigated. Cultivation was performed in 500 mlconical flasks containing 200 ml nitrogen limited medium and incubated at 30 $^{\circ}$C with agitation at 200 rpm for 120 h. The concentrations of trace elements (Mg^{2+}, Mn^{2+}, Fe^{3+}, Cu^{2+}, Ca^{2+}, Co^{2+} and Zn^{2+}), ammonium, glucose and biomass as well as lipid content of the culture were determined at 24 h intervals. Up to 30% lipid (g/g biomass) was accumulated but lipid accumulation stopped at 48h although glucose was still present in the medium. Cessation of lipid accumulation coincided with the depletion of all metal ions concentrations except for Mg^{2+} and Ca^{2+}. When feeding of ammonium, glucose and all the metal ions were carried out at 72h, increased lipid content of 30% to 50% (g/g biomass) was achieved. Similar increase was observed when ammonium, glucose and individual metal ions were employed in the feeding except when Fe^{3+} was employed where up to 48% (g/g biomass) lipid content was achieved. No increase in lipid content was observed when ammonium was omitted. Therefore, these results imply that the depletion of metal ions in the medium contribute to the cessation of lipid accumulation at 48h. Possible role of metal ions and reintroduction of ammonium ion in the reinitiation of lipid accumulation are discussed.
B10008	A comparative study of salt tolerance parameters in three Egyptian ecotypes of Alhagi maurorum "Camel thorn" **Ashgan AbouGabal**, A. Abed Elsalam, El Wakeel H and Amera Zaitoun R.Nader *Abstract—Alhagi maurorum* "Camel thorn is a recognized model plant for studying its adaptation to contrasting and harsh environments. To understand the inherent molecular basis for its remarkable resistance to salinity stresses, *A. maurorum* grown in different zones (Karsheef, Khamesa and Merkeda) in Siwa Oasis of Egypt has been studied using ecological parameters, morphological, molecular and biochemical markers. The highest salinity was found in Karsheef soil (Na= 247.83 milligram equivalent per 100 gram soil and EC= 19.36 ds/m). Ecological studies revealed that *A. maurorum* showed the most homeostatic and tolerant plant in arable land and wet sabkha (Saline soil) and recorded the highest relative importance (DFD) values of all species in Karsheef saline soil (269.75). By finding the fragment of 1.2 kpb in the three *A. maurourum* ecotypes, it is clear that the gene of *P5CS* is present in the three ecotypes. However, the variation between these ecotypes may be due to gene expression. The highest proline content was founed in leaf tissues of *Alhagi maurorum* samples grown in saline soil followed by sandy sheet plants and the lowest concentration was recorded for arable soil sample. Moreover *A. maurorum* ecotypes seem to be similar in peroxidase and esterase isozymes patterns; however the intensity of esterase bands in saline soil was increased than that in sandy sheets and arable soil which means more enzymatic expression of this enzyme in saline soil. SDS-PAGE of the three *A. maurorum* ecotypes induced several low molecular weight proteins among of them the 9.5, 11.5, 16.5, 14.6 and 28.5 kDa proteins, ABA-inducible group of proteins induced by salinity and water deficit.

B10012	Characterization of Collagenase 3 (MMP-13) Expressions in Skin Melanoma, Breast Cancer and Cervical Cancer in vitro **Nur Aizura Mat Alewi**, Mohammad Syaiful Bahari Abdull Rasad *Abstract*—Matrix metalloproteinases (MMPs) comprise of a family of secreted and membrane-bound endopeptidases that hydrolyze extracellular matrix proteins. MMPs are one of many proteins which are undergoing scientific analysis in order to discover their therapeutic potentials. Collagenase 3 (MMP-13), a type of collagenase from the MMP family, has been previously reported to be involved in the development and metastasis of cancers. However, the depth of its involvement in the underlying molecular mechanisms of cancer remains to be poorly known. This study aims to determine the degree of MMP-13 protein expressions in several human cancer cell lines and to ascertain its probable involvement in cancer development. From the study, it was hypothesized that the expression of MMP-13 are varied in several human cancer cell lines (MCF-7, HeLa and A375) and that its expression plays an important role in cancer progression and thus, by understanding such interactions, targeted therapeutic treatments could be developed over time. The quantitative expressions of MMP-13 in skin melanoma (A375), breast cancer (MCF-7) and cervix cancer (HeLa) cells were evaluated through ELISA test. The results showed a marked expression of MMP-13 proteins in MCF-7 (12900 pg/ml), followed by HeLa (8109 pg/ml) and A375 (7515 pg/ml). A375 showed the least amount of expression, which is supported by the fact that only certain forms of skin cancer have been found to express a significant amount of MMP-13. Overall, although variations were found in the expression of the collagenase in various human cancer cell lines, the results depict a prominent presence and probable involvement of MMP-13 in cancer.
B10014	Screening six potential *Yarrowia lipolytica* strains for best lipid, citric acid, biosurfactant and lipase production **Jayeeta Sil**, Subhasish Das, Raquel G.Oliveira, Priscilla F.F.Amaral and Maria Alice Z.Coelho *Abstract—Y. lipolytica* is an industrially important microorganism for production of biodiesel, citric acid, biosurfactant, lipase etc. The aim of the present work was to study the ability of the six different *Y. lypolitica* strains (IMUFRJ 50682, ATCC 18943, SO678, S2301, W29, Po1g) to produce citric acid, biosurfactant, lipase and lipid in a complex medium with glucose as carbon source and yeast extract and ammonium sulfate as nitrogen sources. Among six strains of *Y. lypolitica* studied, ATCC 18943 was found to be best biosurfactant producer, SO678 could accumulate high amount of lipid, whereas IMUFRJ 50682 yielded both citric acid and lipase at highest level.
B10015	BIOPROCESS OPTIMIZATION FOR BIODIESEL PRODUCTION FROM Pongamia pinnata Vidhvath Viswanathan, Vinodh Mohan, Vishva Purusothaman and **Subhasish Das** *Abstract*—In this work reaction parameters namely 1) temperature, 2) time, 3) NaOH concentration and 4) methanol/oil ratio in biodiesel production by two step acid/base catalysed trans-esterification of a non-edible vegetable oil from *Pongamia pinnata* has been optimized by 2^4 central composite design in order to increase diesel yield and reduce reaction time and temperature. Biodiesel yield and compostion was confirmed with HPTLC and GC-MS analysis. The optimal conditions were found to be: 1.44 hours reaction time, 65°C reaction temperature, 0.80 wt % NaOH and 7.4:1 methanol to oil ratio. The optimum yield was observed to be 98.84% with the optimal conditions of experiment
B10021	Economical and Ecological Study of Using the Auxiliary System in Combination with PV Panels in Grid-Connected Condition **S. Sadeghi** and M. Amer *Abstract*—This study considers the effect of PV panel cost on the use of auxiliary power systems in the hybrid power generation system for grid-connected condition. Using the auxiliary power systems along with the PV panels is not essential in grid-connected condition; furthermore, auxiliary power systems produce emission. Therefore, if using the auxiliary power systems (APS) is not economic, the use of them is not justifiable. And if

	their use can be justified, a comparison should be made between different auxiliary systems in order to choose the best of them. In this work, an evolutionary algorithm (PESA) is used for the comparison of different auxiliary systems. Also, the effect of seasonal and monthly change of the panel angle is considered. Seasonal or monthly change of the panel angle can improve the PV panel productivity and decrease the annualized cost (ANC) of the power generation system. Additionally, this study examines the economical effect of unit electricity power price on the power exchange rate of the hybrid system with grid utility.
B10025	Characterization of Completion Operational Safety for Deepwater Wells **Shengnan Wu**, Jianchun Fan, Laibin Zhang, Xiaolong Li, and Peicong Tan *Abstract*—As the exploration and development of offshore energy resources moves into deeper waters, deepwater completion operations is facing much more challenging conditions than onshore and shallow water completion operations. Safety is one of the most important factors to be considered. In this paper, an integrated risk analysis model on basis of preliminary hazard analysis and Swiss cheese model is proposed to specifically evaluate both the static and dynamic risks involved during the deepwater completion phases. Uncertainties and potential hazards in deepwater completion operations and the corresponding consequences are identified by the proposed method. The safety degree of individual hazards is evaluated and effective measures are adopted to prevent, mitigate and control the deepwater completion accidents. Based on the above analysis, risk control model and six safety barriers including well structure barriers, correct operation barriers and well control barriers etc. will be established to mitigate and control incidents and major accidents caused by unintentional fluid leaking from the formation to surface. The greatest priviledge of this method is that it can be applied during the completion design and operation stages, where the effects of hazards in the process are unknown. Finally, a case study is presented to show how this method can be applied to the field operations.
C0005	Respiratory Effects of Exposure to Respirable Dust at Paper Based Industry in Malaysia **Nuur Azreen Paiman**, Abdul Mutalib Leman, Norhidayah Abdull, and Marzuki Ismail *Abstract*— Work environment factor such as air quality in industry become public concern recently especially due to issues related to respirable dust. Most of the workers from paper based industry were exposed to dust during on their daily work activities. A preliminary study and measurement was conducted at tissue mill and packaging area at one of the selected paper based mill in Malaysia to monitor the personal exposure of respirable dust. Series of a direct reading measurement for area sampling of respirable dust (PM_{10}) and questionnaires were administrated in purposed to determine the respiratory health symptoms. The result of the study showed most of the workers are exposed to respirable dust when the Time Weightage Average (TWA) result was above the permissible exposure limit which is 5 mg/m^3 and 3 mg/m^3 from Occupational Safety and Health Agency (OSHA) and American Conference of Governmental Industrial Hygienists (ACGIH) standard respectively. From the survey feedbacks several workers sometimes exposed with the symptoms but claims that it was happen with no noticeable trend they relief when they leave the workplace. For respiratory symptoms problem, seem like majority of workers never experienced a prolonged cough. However, for a better mankind in future, some engineering control and approach has been suggested to the safety and health team to control the machine that fully operated and consider contribute to the dust concentration. Lung function tests need to be done due to workers respiratory health status

Afternoon, June 9, 2013 (Sunday)

SESSION – 6 (ICCPE)

Venue: Concorde 6
Session Chair: KU MARSILLA KU ISHAK
Time: 16:00 – 18:00

I007	Properties of blends of Novatein thermoplastic protein from bloodmeal and polybutylene succinate using two compatibilizers **K.I Ku Marsilla**, C.J.R Verbeek *Abstract*—The use of dual compatibilizers, poly (2-ethyl-2-oxazoline)(PEOX) and polymeric methylene diphenyl diisocyanate (pMDI) in Novatein thermoplastic protein from bloodmeal (NTP) and PBS blends were investigated. A composition of 50% of NTP was used for all formulations with different percentage compatibilizer. Mechanical, morphology, thermal and water absorption were used as analysis methods to study blend properties. To improve compatibility, two different approaches to blending the compatibilizers were used. Firstly, PEOX was added before extrusion this has improved the blend's tensile strength. Secondly, addition of PEOX during NTP production followed by pMDI added before injection molding, showed a futher improvement in tensile strength. SEM revealed that PEOX has improved the dispersion of NTP and pMDI has strengthened the adhesion between phases consistent with mechanical property results. A broad tan δ peak in DMA analysis was obtained indicated improved compatibility in blends using two compatibilizers. In spite of that, the addition of dual compatibilizer has reduced the water resistance of PBS.
I025	Production of Bioethanol Fuel from Low-grade-Date Extract Sulieman A K, Gaily M H, Zeinelabdeen M A, Putra, M. D. and **Abasaeed A E** *Abstract*—Experiments on production of bioethanol through anaerobic fermentation of sugars extracted from low-quality dates using a wild strain of Saccharomyces cerevisiae were conducted at 30°C and 33°C. The effect of the pH during fermentation was insignificant at the operating temperatures.The average ethanol yield for all experiments was greater than 71% of its theoretical value. Experiments in a 1L volume fermentor at 30°C and 120 rpm without controlling the pH during fermentation gave ethanol yields of 91.3%, 68.7% and 54.8 % for the 10, 15 and 20% initial sugar concentrations, respectively. The drop in ethanol yield for 20% sugars could be attributed to probable ethanol inhibition.
I10005	A REVIEW ON PULP MANUFACTURE FROM NON WOOD PLANT MATERIALS **Kamoga Omar L.M**, Byaruhanga J.K and Kirabira J. B *Abstract*—There has been a cyclic trend in the production of pulp and paper, alternating between the non-wood and the wood materials. Originally paper was made from non-wood materials such as papyrus, hemp and textile rags. With the development of technologies for isolating pulp from wood, it resulted in abandoning paper making from many non-wood materials. Since then, it has been cheaper to produce pulp and paper from wood. However, todate the trend seems to be reversing from wood as the major source of pulp for paper making to non-wood materials such as agricultural food crop residues, grasses, shed tree leaves, fibrous shells of fruits and others. This is due to the fact that the supply of wood for pulp is decreasing as a result of deforestation in most part of world, more especially in Uganda while the non-wood materials are more available and can readily be regenerated after a short period. In this paper we have reviewed the trend of pulp and paper production from different non-wood materials since the perception of the paper making technology up todate through literature review and consultations with experts in the area pulp and paper production.
I10011	A MORPHOLOGICAL STUDY ON THE CARBON PARTICLES FROM WOOD FIBER WASTE VIA HYDROTHERMAL CARBONIZATION PROCESS **Saidatul S. Jamari**, Jonathan R. Howse, Azlinna A. Bakar *Abstract*— Wood fiber waste is abundantly produced from the medium density wood fiber industry. The

	production of carbon from biomass is having more intention from the researcher due to the application. In this research, the conversion of biomass from wood fiber waste into carbon particle via hydrothermal carbonization (HTC) process is chosen. In this experiment, wood fiber and water were added in a pressure vessel and heated up to temperature between 200 – 220°C for 4 hours. Analyses were carried out using Elemental Analyzer, TGA, FTIR and FESEM for the characterization phase. The carbon value recorded an improvement as the O/C ratio of raw material is higher than the HTC products. The surface morphology obtained from FESEM showed pores on the surface of the HTC product suggesting a processing route to complicated carbon based structures. It can be concluded that both processes is practicable method to convert biomass into value added product.
I20002	Synthesis and use of a new ionic liquid for the extraction of aromatic solvents from an oil refinery fraction Indra Bahadur, **Kandasamy Moodley**, Prashant Singh, Mbongeni Mabaso and Gan Redhi *Abstract*—Ionic liquids have many 'labels' due to their usefulness in a wide variety of applications. Pertinent to this report are the labels of 'green solvents' and 'designer solvents'. To this end a new ionic liquid, namely, N-butyl-N-methyl-2 oxopyrrolidonium bromide was synthesised, characterised and used as an extractant in recovering aromatic solvents from aromatic/aliphatic mixtures. In this project the new ionic liquid and the two previously used ionic liquids have been shown to be 'green solvents' through their use as viable alternative extractants. The new ionic liquid was used to recover aromatic solvents from 'prepared mixtures' of aromatic solvents with aliphatic ones as well 'real' samples as reformates from an oil refinery. The new ionic liquid gave extractions values which are higher than ionic liquids previously used in our laboratories. On account of its low toxicity and recyclability, it has potential to be used as a replacement for extractants which are currently used in industry. This is especially important as this ionic liquid can be made on a scale needed for plant scale application.
I20006	Yield enhancement strategies for enhancement of indole alkaloids in hairy root cultures of Catharanthus roseus **D. Thakore**, A. K. Srivastava and A.K. Sinha *Abstract*—Late exponential phase of hairy root cultures of Catharanthus roseus cultivated in a statistically optimized medium were treated with permeabilizing agents (DMSO, Triton X-100, n-hexadecane and Tween 80) to establish the effect of their concentrations and exposure time on the biomass and major alkaloid(ajmalicine) yield & productivity. The permeabilizing agents TritonX-100(0.1% v/v) and n-hexadecane(2%v/v) led to 98% increase in the specific yield of ajmalicine in the roots. Statistical techniques were used to determine the significance of various treatments and their response on the yield of the secondary metabolite. Both DMSO and Triton X-100 were found to be useful in effluxing ajmalicine into the medium resulting in a 12 fold and 16 fold increase respectively. The viability assay revealed the tolerance of the roots to all permeabilizing agents but tween 80.It can be concluded from the studies that permeabilizing factors were highly instrumental in enhancing the biomass and alkaloid concentrations and rates during the propagation of hairy root cultivation of Catharanthus roseus. Such a protocol of application of non lethal permeabilizing agents to leach out the key plant secondary metabolites can be extended to mass scale hairy root cultivation.
I20008	Study of various factors for enhancement of Artemisinin in Artemisia annua hairy roots **Nivedita Patra**, Shilpi Sharma and A. K. Srivastava *Abstract*—Artemisinin is an alternate anti-malarial drug which is widely used in the cure of multi-drug resistant Plasmodium falciparum malaria. In this study, enhancement of artemisinin content by using several elicitors and precursors was attempted initially by using one at a time (OVAT) approach. The most potent elicitor(s) & precursor were thereafter identified by the detailed analysis of the responses with respect to biomass and bioactive compounds with respect to the concentrations of different effectors.

	Central Composite Design (CCD) was thereafter used to identify the antagonistic or synergistic effects of high and low concentrations of different precursors and elicitors. The maximum artemisinin content obtained was 3.45 mg/g on 15d by using the elicitor Methyl jasmonate (40 µg/l) and the precursors Casein acid hydrolysate (50 µg/l), Sodium acetate (500 µg/l). Effect of addition time of elicitors and precursors on overall optimum biomass growth and artemisinin yield and productivity was also established
I30004	Optimization of Natural Dyeing Using Ultrasonic Method and Biomordant **N.A. Abdul Rahman**, R. Tajuddin, S.M. Tumin *Abstract*—Problem statement: Traditionally the dyeing of natural dyes from plant materials was done by boiling using roaches method which requires longer time, higher temperature and metallic mordant to get good color fastness. Metallic mordants usually used in dyeing posed some serious bad effect to ecological. Thus this study explored a suitable technique for more efficient natural dyeing using suitable bio mordant to improve the color fastness of natural dyes on silk fabric. Approach: This study demonstrated ultrasonic cleaner as a technique of dyeing the colorant from a selected plant, i.e Xylocarpus moluccensis to a selected fabric, i.e silk. Colorant from combination of heartwood and bark (as a biomordant) of Xylocarpus moluccensis was dyed at different ultrasonic volume and time. Result: Results show the highest percentage of dye absorbed to silk fabric using ultrasonic cleaner was produced at optimum condition of medium sonic volume in 80 minutes time. Bark of Xylocarpus moluccensis was used as the biomordant to produce good color fastness properties to washing and perspiration. Conclusion: The utilization of ultrasonic cleaner and biomordant was found to have significant improvement in the dyeing color of natural dyes to silk fabric with lower dyeing temperature compared to traditional roaches method.
I30007	Use of Desalinated Reject Water as a Source of Magnesium for Phosphorus Recovery **Kazi P. Fattah**, Sina Shabani and Aqeel Ahmed *Abstract*—In this study, the formation potential of struvite has been assessed using synthetic centrate mixed with reject water of a local desalination plant. $NH_4H_2PO_4$, $MgCl_2.6H_2O$, and NH_4Cl were mixed in specific concentrations to simulate centrate of a wastewater treatment plant coming from centrifuge of anaerobic digesters. Due to the lack of adequate magnesium in domestic wastewater, the prepared synthetic centrate was further mixed with the reject water of MED and RO units of the desalination plant since it is rich in magnesium which is required for formation of struvite. Significant removal of phosphorus was observed through precipitation of phosphorus compounds after stirring the samples in a batch reactor.

June 9, 2013 18:30	**Closing Ceremony(Concorde 2)**

June 9, 2013 19:00	**Dinner**

Conference Venue

Concorde Inn Kuala Lumpur International Airport

（http://sepang.concordehotelsresorts.com/index.php)

Contact person: Ahrizan Binti Basiran
E-mail Address: ahrizan@concorde.net